



DC Boarduino (Arduino Clone)

Kit

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TOOLS:

- [Soldering/desoldering tools \(1\)](#)
- [Wire cutter/stripper \(1\)](#)

PARTS:

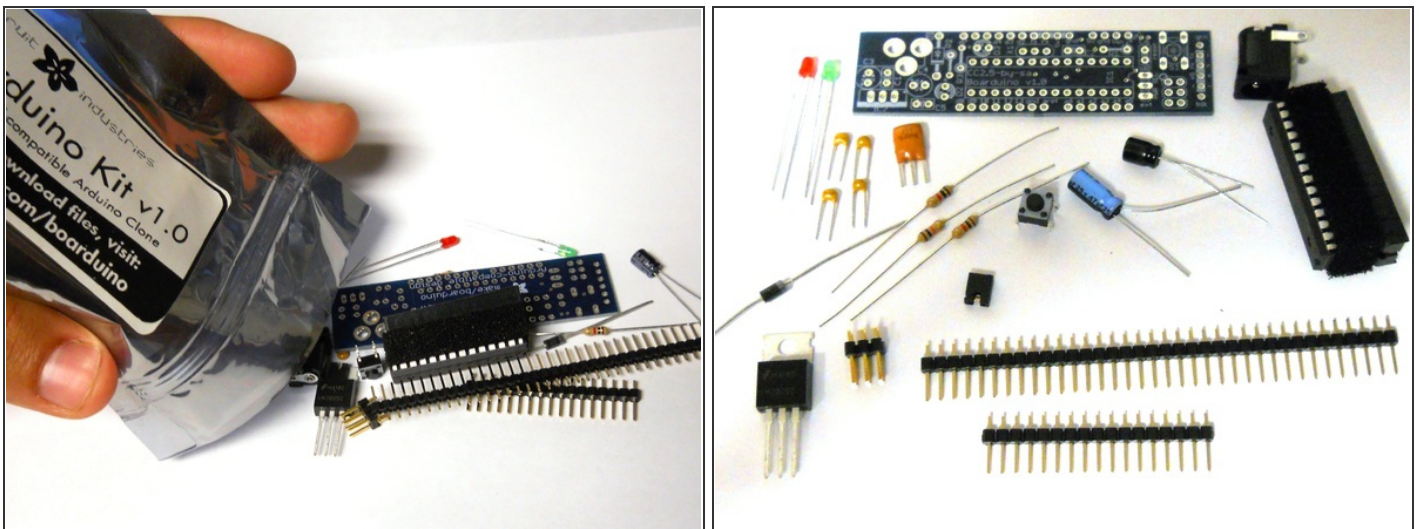
- [DC Boarduino \(Arduino Clone\) Kit \(1\)](#)
- [IC socket \(1\)](#)
- [IC ATMEGA328P \(1\)](#)
- [16.00 MHz ceramic oscillator \(1\)](#)
- [2.1mm Power Jack \(1\)](#)
- [1N4001 diode \(1\)](#)
- [5V regulator \(1\)](#)
- [0.1uF ceramic capacitor \(4\)](#)
- [47uF / 25V capacitor \(1\)](#)
- [100uF/6.3V capacitor \(1\)](#)
- [10K Resistor \(1\)](#)
- [1K Resistor \(2\)](#)
- [Green and Red LED \(1\)](#)
- [6mm tactile switch button \(1\)](#)
- [6-Pin ICSP Header \(1\)](#)
- [40 pin male header \(1\)](#)

- [Jumper \(1\)](#)
- [Circuit board \(1\)](#)

SUMMARY

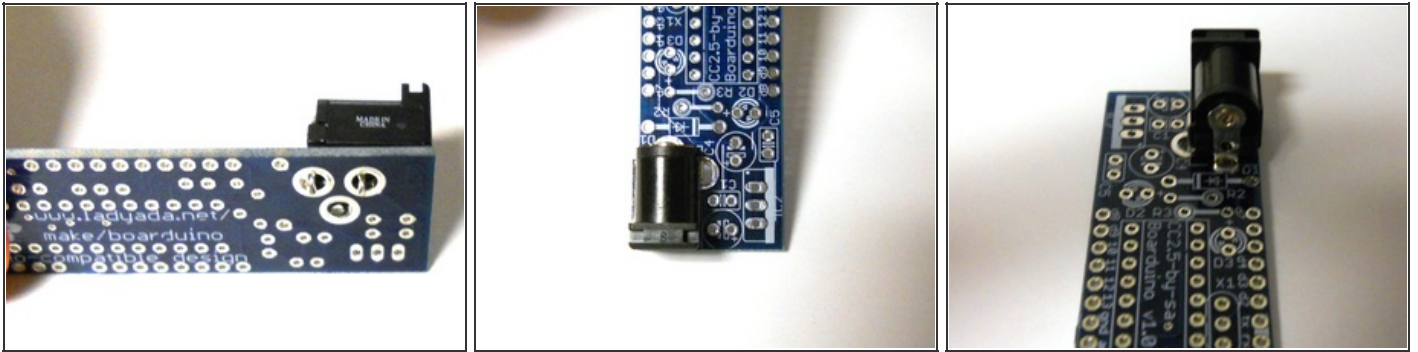
If you've ever struggled to use a solderless breadboard with an Arduino, you understand how frustrating it can be! The Boarduino clone acts just like an Arduino, and works with the latest Arduino software. For many projects it can even be preferable!

Step 1 — Parts Check!



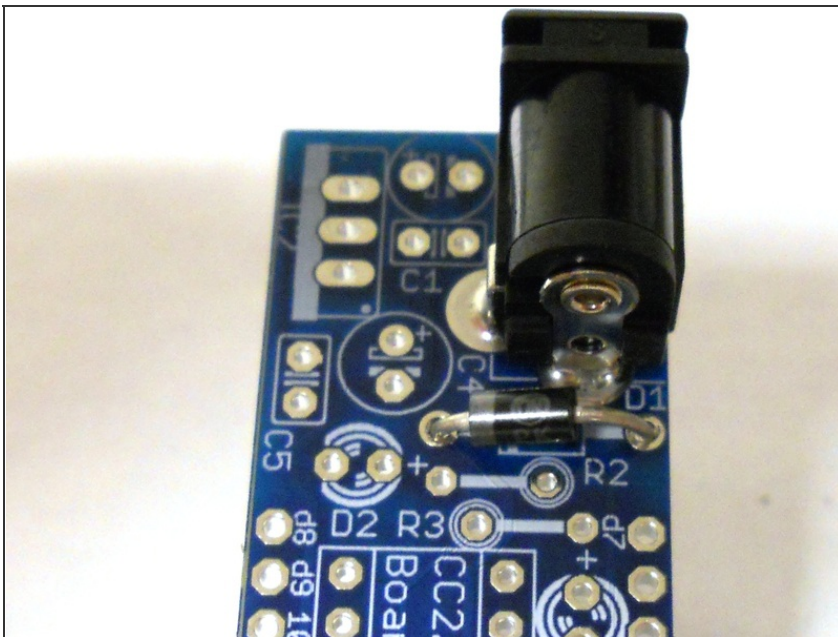
- At the top of this guide, you will find a list of the supplied parts to build this kit.
- Make sure you have all of the required parts. If you are missing any parts, check under your chair!

Step 2 — Insert the 2.1mm DC Jack



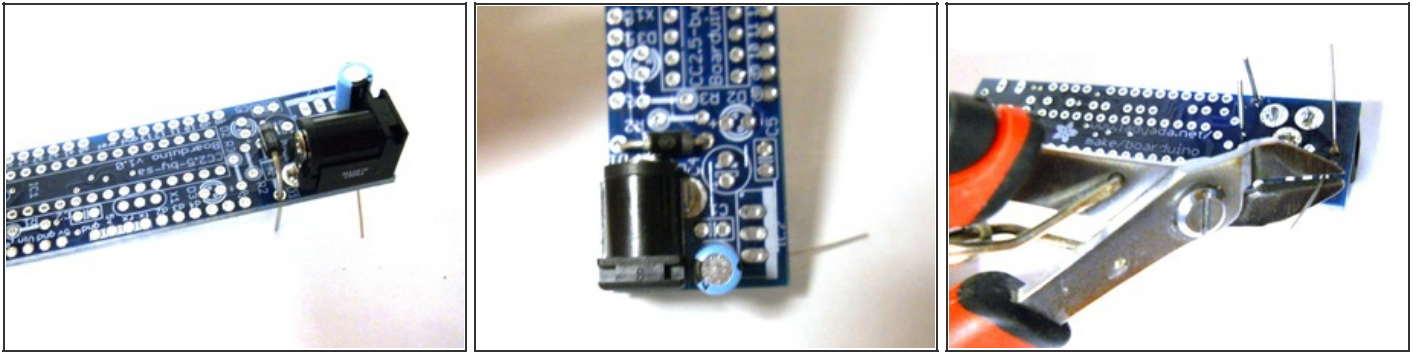
- Place the 2.1mm DC jack on the side of the circuit board with the white text and images.
- Make the jack snug with the circuit board by firmly pressing it down.
- Turn the circuit board over and solder the leads to the board.

Step 3 — Insert the D1 Diode



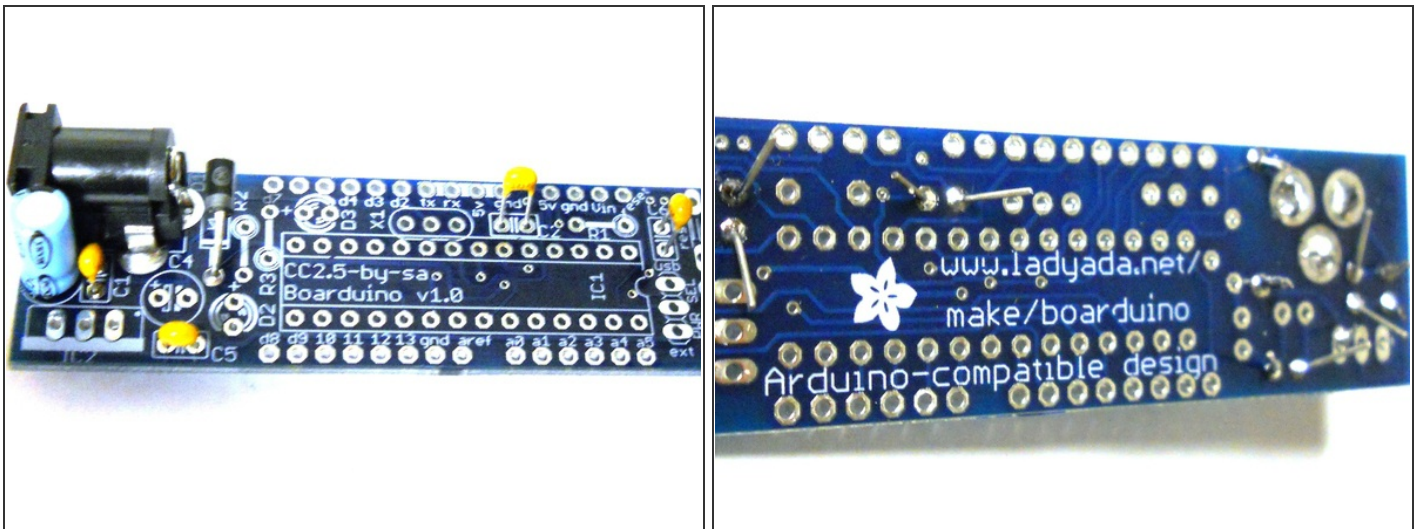
- On the circuit board at **D1**, you will notice one end of the image has a white strip.
- Insert the diode into D1 with the gray/white strip matched up with the white strip on the circuit board.
- Turn the board over, and solder the diode in.

Step 4 — Insert the C3 Capacitor



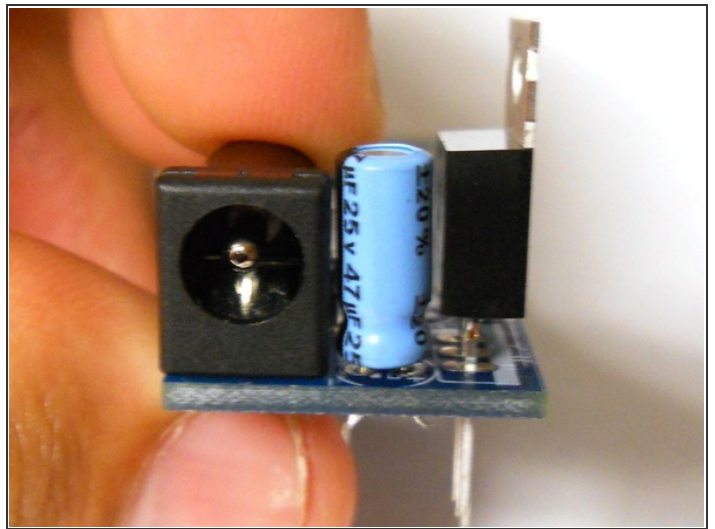
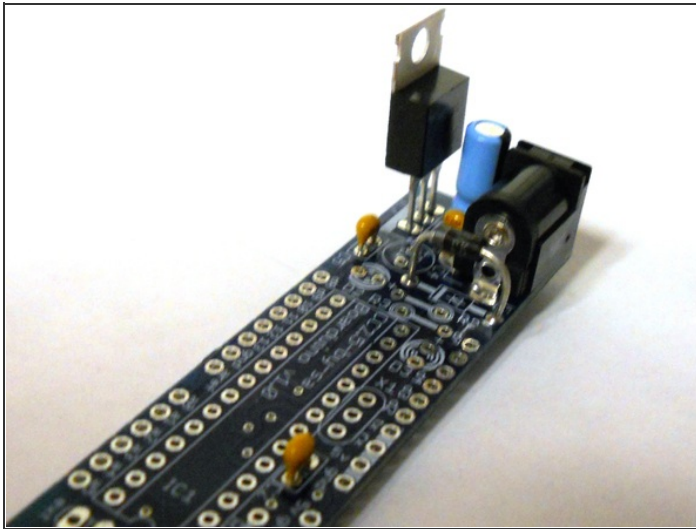
- Insert the longer lead of the blue capacitor into the **C3** hole marked with the (+) sign, and the shorter lead (-) goes into the other hole on the PCB.

Step 5 — Insert the Ceramic Capacitors



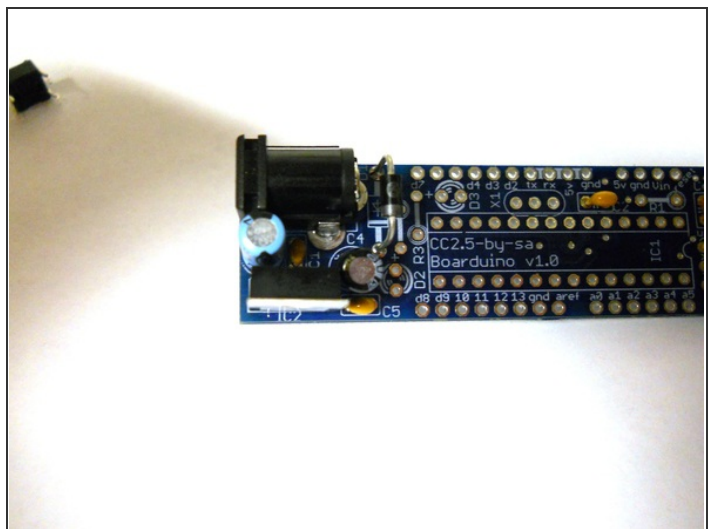
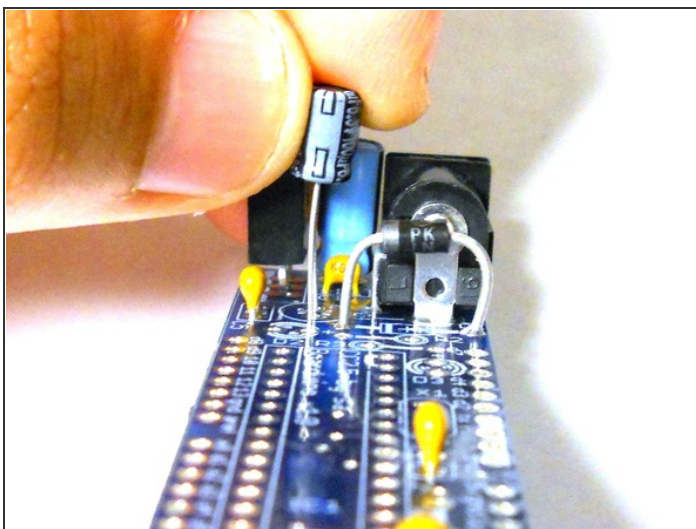
- In positions **C1**, **C5**, **C2**, and **C6**, insert the small yellow capacitors.
- These ceramic capacitors are **not** polarized, so you can insert them either way.
- Secure these in the circuit board, turn the board over, and solder them in.

Step 6 — Insert the 5V Regulator



- The 5V Regulator is an integral component of the kit. It takes the source voltage, and regulates it down to a healthy 5V.
- Insert the regulator as shown in the photo. The heat sink tab should be facing outward.
- Secure the component, turn the board over, and solder it in.

Step 7 — Insert the 100uF Capacitor



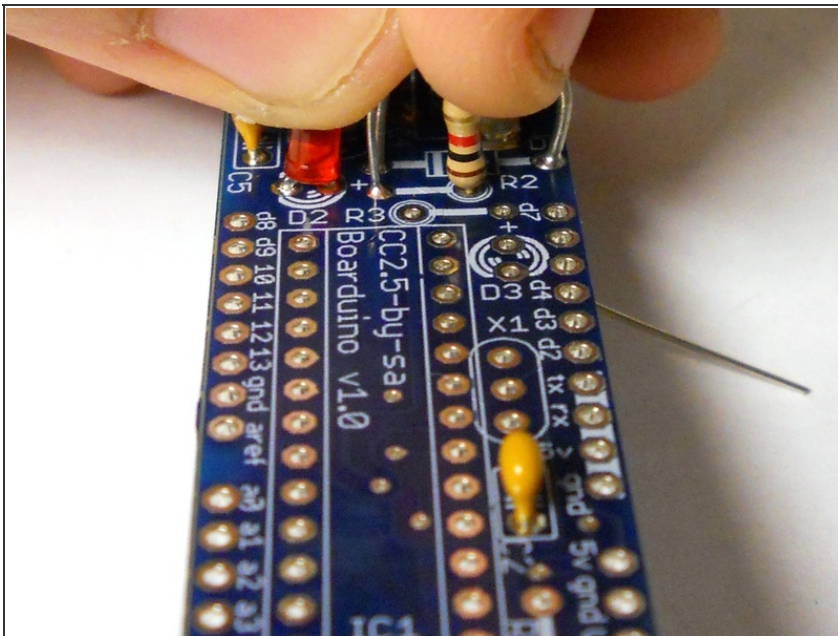
- The black 100uF, 6.3V, black capacitor should be inserted into the **C4** spot.
- This capacitor is polarized, so orientation is important. Be sure that the lead near the white strip (-) on the capacitor is placed into the hole marked with the negative symbol (-), and the other (longer) lead is inserted into the hole marked with a plus (+).

Step 8 — Insert the Green LED



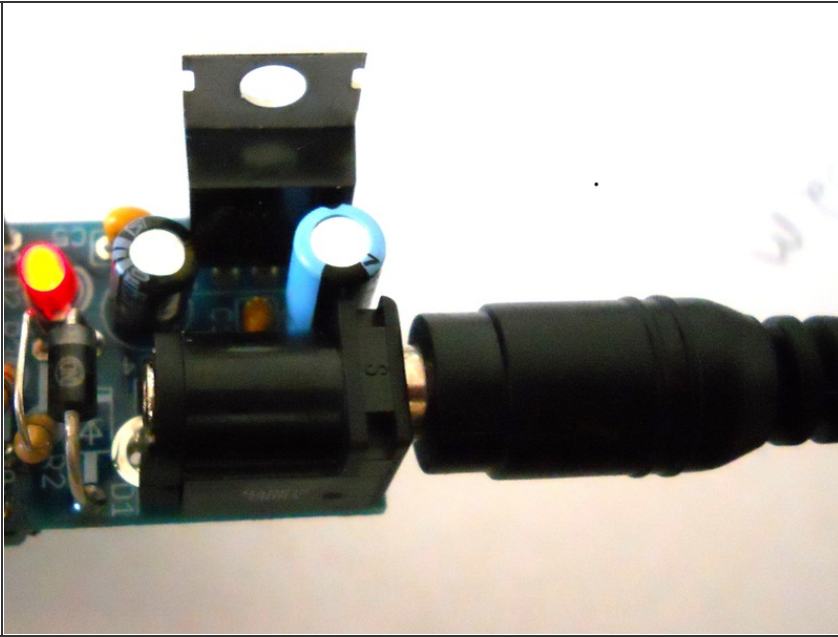
- Whoops! I accidentally placed the red LED in place of the green LED. It's not that big of a deal!
- The green LED should be inserted at **D2**, while the red LED should be inserted at **D3**.
- The LEDs are polarized. Make sure to insert the longer lead (+) into the hole marked with the (+) sign, and the shorter lead (-) goes into the other available hole in the PCB.

Step 9 — Insert the 1K resistor.



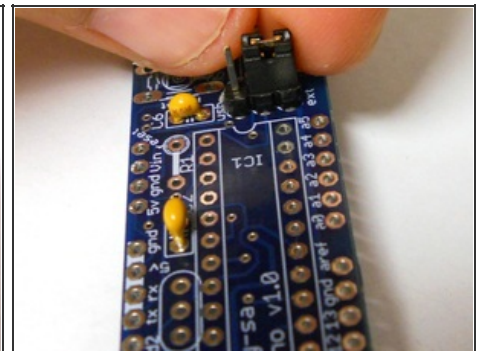
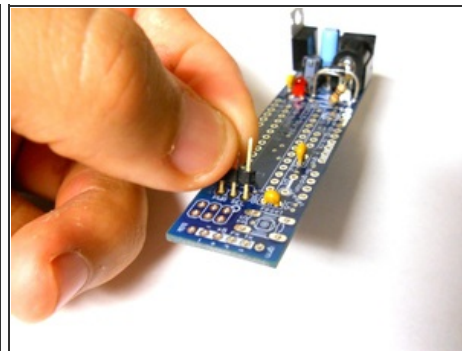
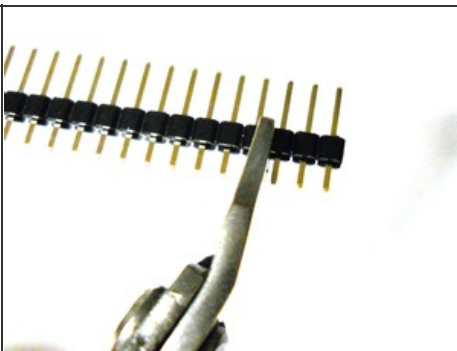
- One of the 1K Resistors (Brown-Black-Red) should be placed into the hole marked **R2**.
- To save some space the resistor is soldered on in a "standing" position. Insert the resistor in a "standing" position as pictured. The body of the resistor will be by the area marked "R2".
- Secure the resistor, turn the circuit board over, and solder it in place. Next, clip the leads flush.

Step 10 — Your First Test



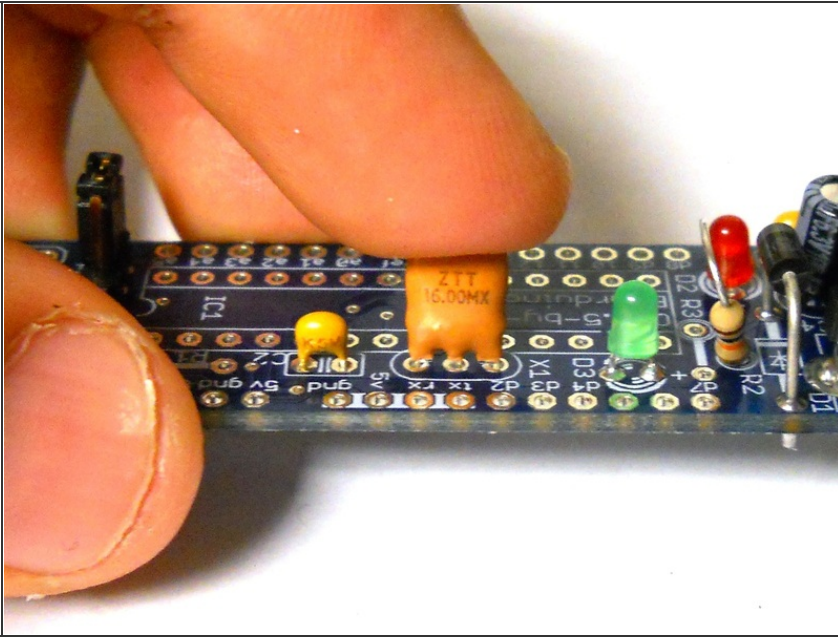
- Find a power source, such as a 9V DC wall adapter or a 9V battery, with a 2.1mm barrel jack.
- Plug the jack into the wall, and you should see your green LED light up.
- I have a red LED in place of a green LED, but if the LED lights up, then you are in good shape!

Step 11 — Snip a 3-Pin Header.



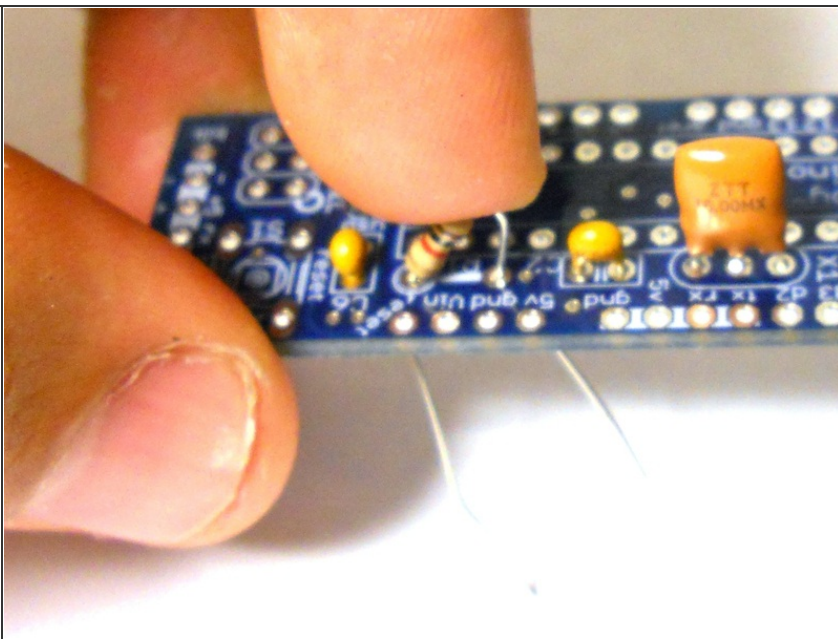
- The headers are the long strips of plastic with all the pins sticking out. These are used to insert the Boarduino in the breadboard.
- Take some clippers, and cut off a section of 3 pins.
- Insert this 3-pin header into the PWR-SEL holes, with the longer ends sticking up.
- These are tricky to solder. You might want to use some tape to hold it in place while soldering it.
- Next, place the included jumper so it's on the 'EXT' pair of pins.

Step 12 — Insert the Ceramic Oscillator.



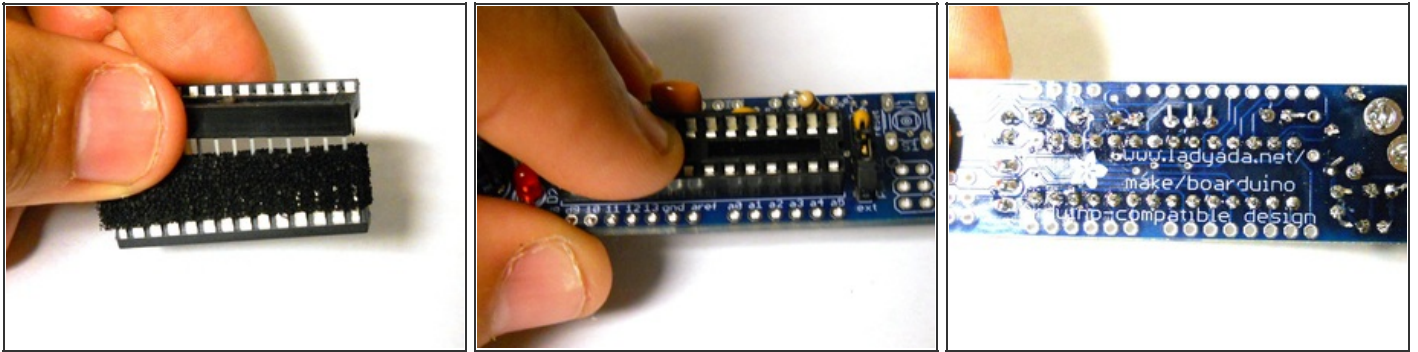
- The ceramic oscillator should be placed in the holes marked **X1**.
- This component is not polarized, so it does not matter which direction you place it in on your circuit board.
- Turn the board over, and solder it in.

Step 13 — Insert the Final Resistors



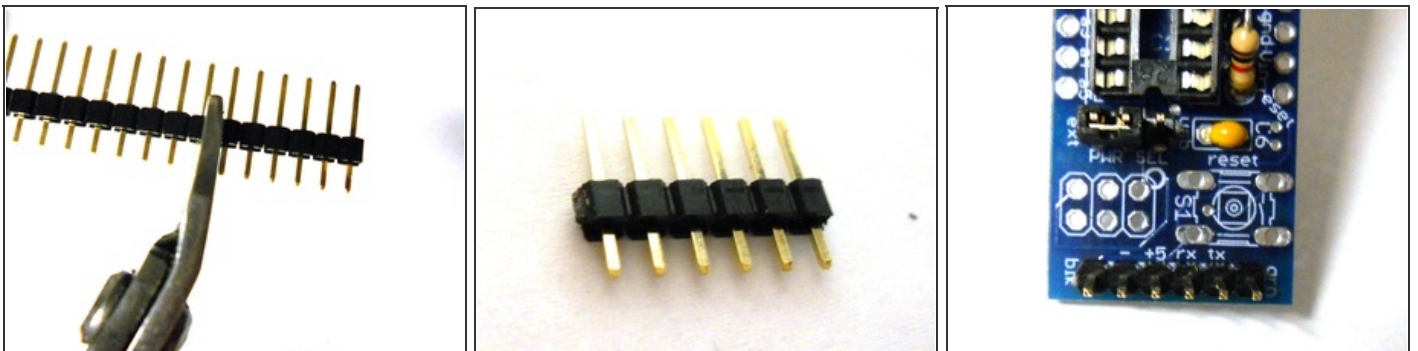
- The two other resistors should be inserted into spots **R1** and **R3**. The resistor for **R1** is the 10K resistor, colored brown-black-orange-gold. In **R3** insert the remaining 1K resistor, which is the resistor colored brown-black-red-gold.
- Just as with the first resistor, place it in with the body of the resistor facing down toward the circles.
- Secure the resistors, turn the board over, and solder them in.

Step 14 — Insert the Chip Holder



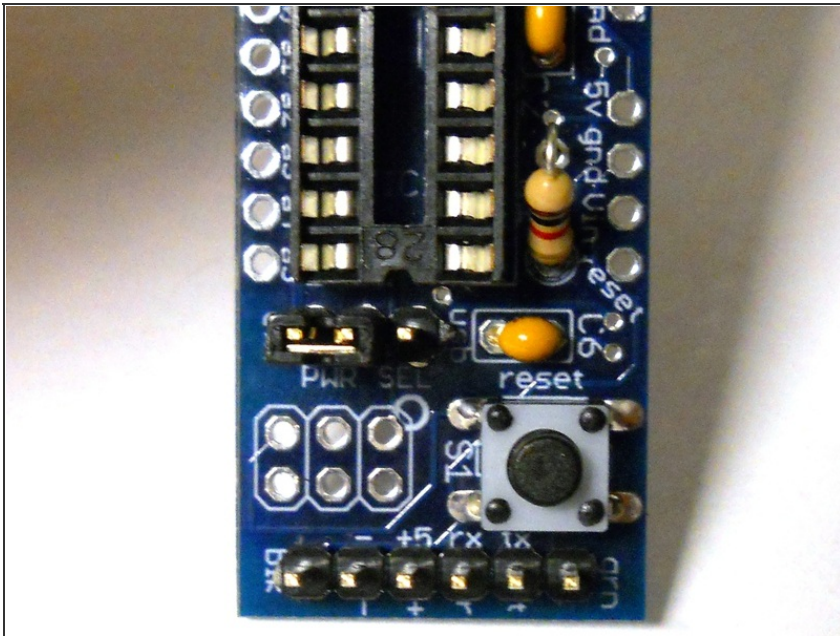
- The IC holder should be placed on the board with the notched end facing the notched end of the silkscreened image on the circuit board.
- Turn the circuit board over, and carefully solder each joint. Be sure not to bridge any of the solder joints.
- If a bridge does occur, you can use some solder wick or a solder sucker to remove the solder from the circuit board.

Step 15 — Insert the 6-Pin Header.



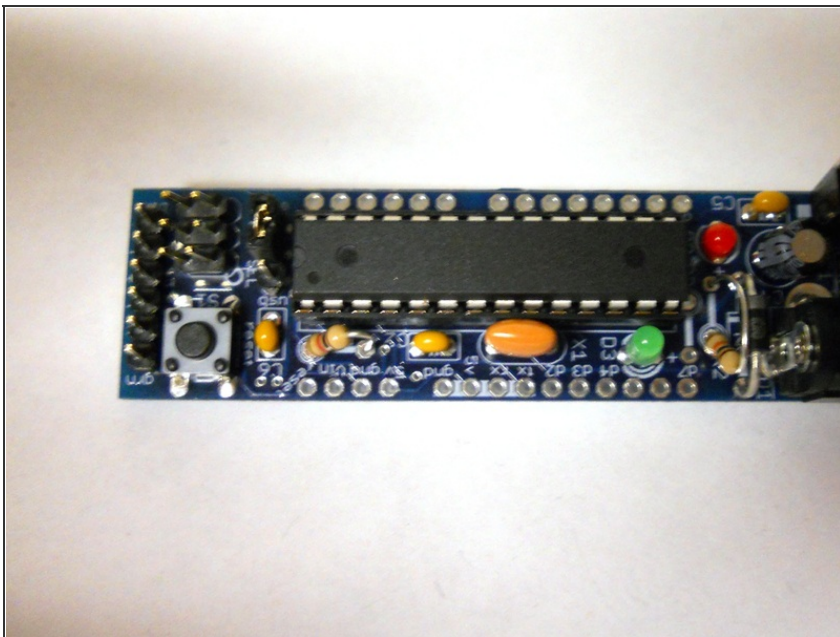
- Cut a 6-Pin header section, and insert the shorter pins into the PCB from the front of the board.
- Turn the board over and solder the shorter pins from the back of the PCB.

Step 16 — Insert the Push-Button Switch



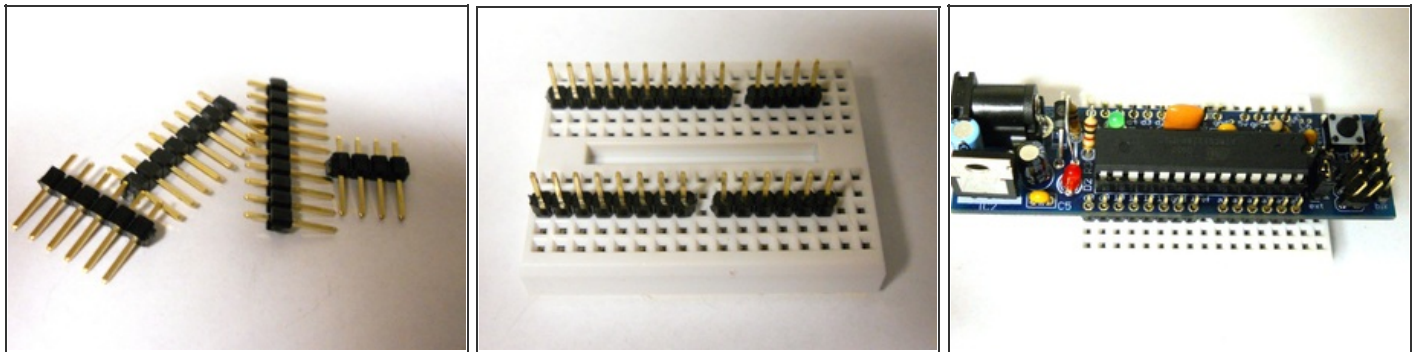
- The push-button switch can be inserted either way into the spot **S1**.
- The switch should fit pretty securely, so just turn the switch over and solder it in.

Step 17 — Insert the 6-Pin ICSP Header



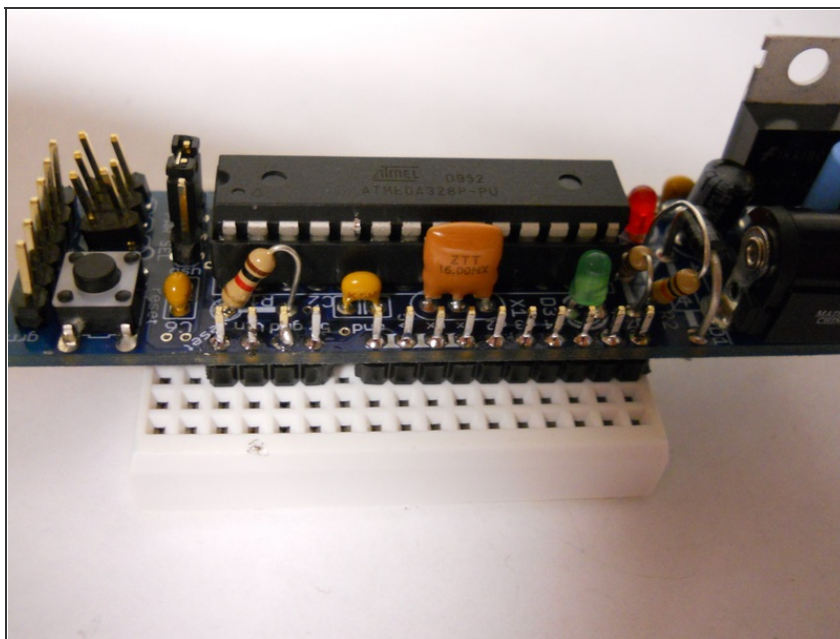
- This is the header in the shape of a rectangle, with six pins.
- Insert it with the longer pins facing up, into the six holes next to the push-button switch.
- Turn the board over, and solder it in!

Step 18 — Inserting the Final Headers (Part 1)



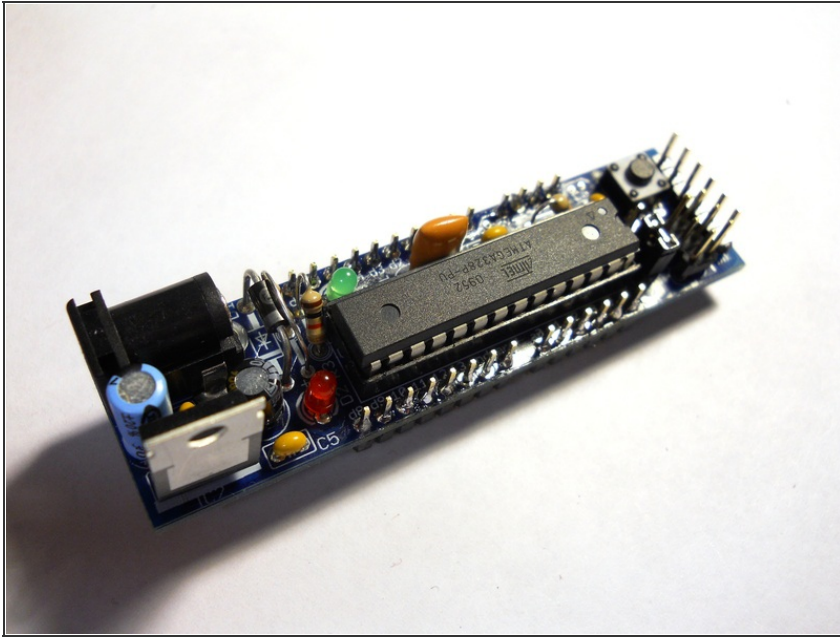
- Snip 4 pieces of header pins; one 10-pin, one 8-pin, one 6-pin, and one 4-pin.
- Insert them into a solderless breadboard as shown in image 2.
- **The longer leads should be placed in the breadboard! (Short leads up.)**
- Now place the Boarduino on top of the headers, so that they all fit securely.

Step 19 — Insert the Final Headers (Part 2)



- Now you just need to solder each of the headers into place on the circuit board.
- You will be soldering from the top of the circuit board.
- Be careful not bridge any solder joints.

Step 20 — Insert the IC.



- It can be difficult to insert the IC. You will want to make sure the leads on the IC are straight, and not "flared" out.
- You can place the IC on a flat surface and gently bend the leads until they are straight, coming out of the IC at a 90-degree angle.
- All done! Try powering it up and upload some code.

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